Report1

Load the R packages

```
library(knitr)
library(readr)
library(tidyverse)
library(dplyr)
library(tidyr)
library(stringr)
```

Load the data

```
students <- read_csv("students.csv")
professors <- read_csv("professors.csv")
```

Tidy data and compute the sum of answers

```
# rename column names for easier handling

students <- students %>%
  rename(
    totally_disagree = 'Totally Disagree',
    disagree = 'Disagree',
    agree = 'Agree',
    totally_agree = 'Totally agree'
    )

professors <- professors %>%
  rename(
    totally_disagree = 'Totally Disagree',
    disagree = 'Disagree',
    agree = 'Agree',
    totally_agree = 'Totally agree'
    )

# compute all the answers to each question
students <- students %>%
 mutate(total_answers = totally_disagree + disagree + agree + totally_agree)

professors <- professors %>%
 mutate(total_answers = totally_disagree + disagree + agree + totally_agree)
```

The total number of answers obtained from students is 7748.

The total number of answers obtained from professors is 3654.

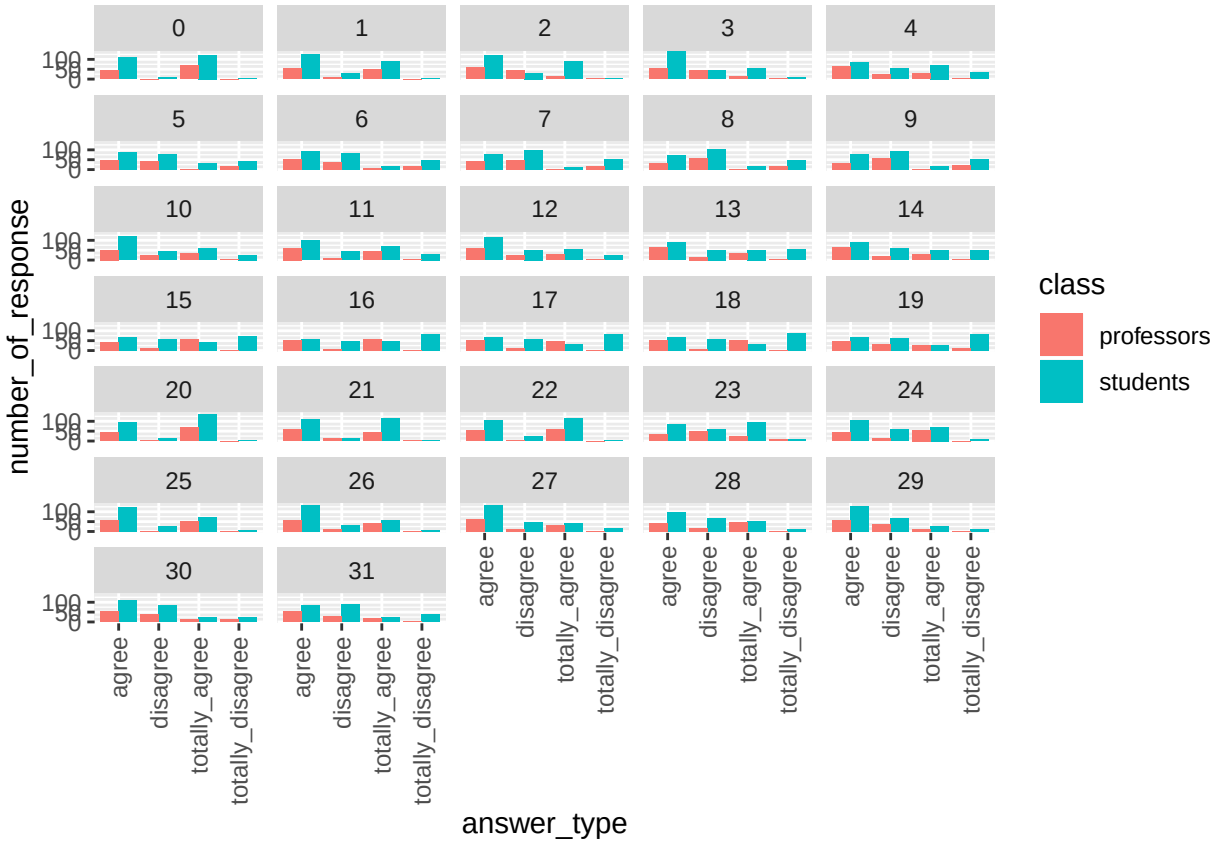
Each question does *not* have the same number of answers: the numbers of answers obtained from students ranges from 230 to 244, whereas the numbers of answers obtained from professors ranges from 103 to 115.

The plot - data crunching

```
# convert shape of tibble and remove total_answer column

students <- select(students, -total_answers)
students_gathered <- students %>%
  gather(key = "answer_type",
         value = "number_of_response",
         totally_disagree,
         disagree,
         agree,
         totally_agree)

students_gathered <- students_gathered %>%
  rename(question_number = 'X1')

students_gathered <- students_gathered %>%
  add_column(class = 'students')

professors <- select(professors, -total_answers)
professors_gathered <- professors %>%
  gather(key = "answer_type",
         value = "number_of_response",
         totally_disagree,
         disagree,
         agree,
         totally_agree)

professors_gathered <- professors_gathered %>%
  rename(question_number = 'X1')

professors_gathered <- professors_gathered %>%
  add_column(class = 'professors')

# execute a full join such that we have one final tibble

final_data <- students_gathered %>% full_join(professors_gathered)
```

The plot - visuals

```
ggplot(final_data,
       aes(x=answer_type,y=number_of_response, fill=class)) +
geom_bar(stat ="identity", position=position_dodge()) +
facet_wrap( ~ question_number, ncol=5) +
theme(axis.text.x=element_text(angle=90,hjust=1,vjust=0.5))
```



The mode

```
my_names <- names(students)

for (p in 1:length(students$X1)) {
  ind <- c(students[p,2:length(my_names)]==max(students[p,2:length(my_names)]))
  print(paste("Students: Mode of Question",toString(p),"is",my_names[2:length(my_names)][ind],sep = " "
  rm(ind)

  ind <- c(professors[p,2:length(my_names)]==max(professors[p,2:length(my_names)]))
  print(paste("Professors: Mode of Question",toString(p),"is",my_names[2:length(my_names)][ind],sep = "
  rm(ind)
}
```

```
## [1] "Students: Mode of Question 1 is totally_agree"
## [1] "Professors: Mode of Question 1 is totally_agree"
## [1] "Students: Mode of Question 2 is agree"
## [1] "Professors: Mode of Question 2 is agree"
## [1] "Students: Mode of Question 3 is agree"
## [1] "Professors: Mode of Question 3 is agree"
## [1] "Students: Mode of Question 4 is agree"
## [1] "Professors: Mode of Question 4 is agree"
## [1] "Students: Mode of Question 5 is agree"
## [1] "Professors: Mode of Question 5 is agree"
```

```
## [1] "Students: Mode of Question 6 is agree"
## [1] "Professors: Mode of Question 6 is agree"
## [1] "Students: Mode of Question 7 is agree"
## [1] "Professors: Mode of Question 7 is agree"
## [1] "Students: Mode of Question 8 is disagree"
## [1] "Professors: Mode of Question 8 is disagree"
## [1] "Students: Mode of Question 9 is disagree"
## [1] "Professors: Mode of Question 9 is disagree"
## [1] "Students: Mode of Question 10 is disagree"
## [1] "Professors: Mode of Question 10 is disagree"
## [1] "Students: Mode of Question 11 is agree"
## [1] "Professors: Mode of Question 11 is agree"
## [1] "Students: Mode of Question 12 is agree"
## [1] "Professors: Mode of Question 12 is agree"
## [1] "Students: Mode of Question 13 is agree"
## [1] "Professors: Mode of Question 13 is agree"
## [1] "Students: Mode of Question 14 is agree"
## [1] "Professors: Mode of Question 14 is agree"
## [1] "Students: Mode of Question 15 is agree"
## [1] "Professors: Mode of Question 15 is agree"
## [1] "Students: Mode of Question 16 is totally_disagree"
## [1] "Professors: Mode of Question 16 is totally_agree"
## [1] "Students: Mode of Question 17 is totally_disagree"
## [1] "Professors: Mode of Question 17 is totally_agree"
## [1] "Students: Mode of Question 18 is totally_disagree"
## [1] "Professors: Mode of Question 18 is agree"
## [1] "Students: Mode of Question 19 is totally_disagree"
## [1] "Professors: Mode of Question 19 is agree"
## [1] "Students: Mode of Question 20 is totally_disagree"
## [1] "Professors: Mode of Question 20 is agree"
## [1] "Students: Mode of Question 21 is totally_agree"
## [1] "Professors: Mode of Question 21 is totally_agree"
## [1] "Students: Mode of Question 22 is totally_agree"
## [1] "Professors: Mode of Question 22 is agree"
## [1] "Students: Mode of Question 23 is totally_agree"
## [1] "Professors: Mode of Question 23 is totally_agree"
## [1] "Students: Mode of Question 24 is totally_agree"
## [1] "Professors: Mode of Question 24 is disagree"
## [1] "Students: Mode of Question 25 is agree"
## [1] "Professors: Mode of Question 25 is totally_agree"
## [1] "Students: Mode of Question 26 is agree"
## [1] "Professors: Mode of Question 26 is agree"
## [1] "Students: Mode of Question 27 is agree"
## [1] "Professors: Mode of Question 27 is agree"
## [1] "Students: Mode of Question 28 is agree"
## [1] "Professors: Mode of Question 28 is agree"
## [1] "Students: Mode of Question 29 is agree"
## [1] "Professors: Mode of Question 29 is totally_agree"
## [1] "Students: Mode of Question 30 is agree"
## [1] "Professors: Mode of Question 30 is agree"
## [1] "Students: Mode of Question 31 is agree"
## [1] "Professors: Mode of Question 31 is agree"
## [1] "Students: Mode of Question 32 is disagree"
## [1] "Professors: Mode of Question 32 is agree"
```